Environmental Compatibility of Aviation

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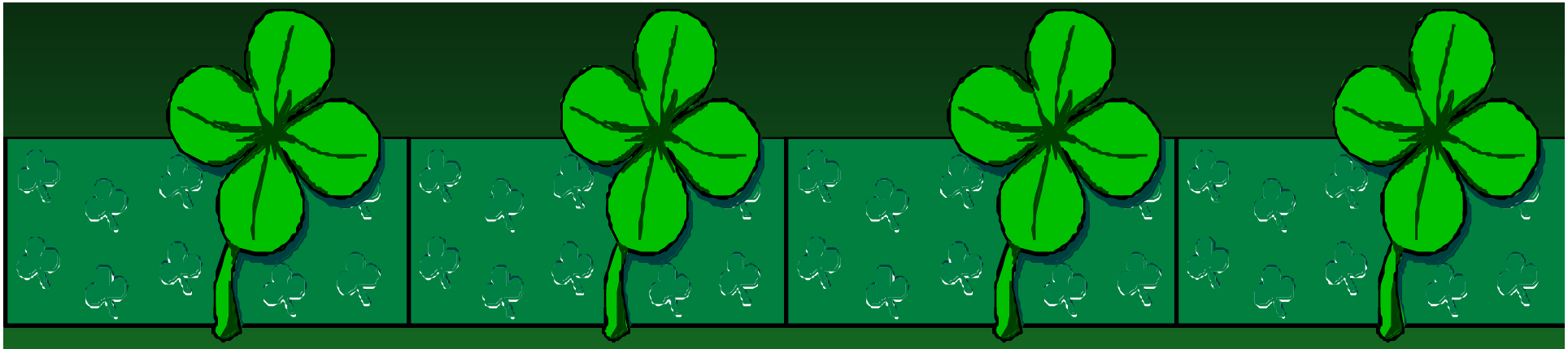

‘Tis a Green Day for Aviation

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Topics of Discussion

- Administration Policy on Aeronautics R&D
- UN Framework Convention on Climate Change
- Administration's Policy on Climate Change
- NASA Aeronautics R&D Strategy

Goals for a National Partnership in Aeronautics Research and Technology

- Maintain the superiority of U.S. aircraft and engines
- Improve the safety, efficiency, and cost effectiveness of the global air transportation system
- **Ensure the long-term environmental compatibility of the aviation system**

Ensure the Environmental Compatibility of Aviation

- Develop and validate technologies to reduce engine and airframe noise
- Develop flight procedures to reduce community noise
- Develop and validate technologies to increase engine efficiency while decreasing noxious and ozone-depleting chemicals

UN Framework Convention on Climate Change

- Stabilize greenhouse gas concentrations at a safe level within an acceptable time frame
- Develop national inventories of greenhouse gas emissions
- Develop national programs to mitigate climate change
- Promote technologies, practices, and processes that control, reduce, or prevent emissions

UNFCCC Montreal Protocol

- NOT legally binding
- Requires that developed countries and countries with economies in transition (the "Annex 1" countries) return, individually or jointly, greenhouse gas emissions to their 1990 levels by 2000.

UNFCCC Kyoto Protocol

- Legally binding protocol
- Requires Annex 1 countries to reduce their collective emissions of 3 most important greenhouse gases (CO2, methane, NO2) by 5% below 1990 levels by 2008-2012
- International aviation emissions (i.e., from aviation bunker fuels) excluded

UNFCCC Kyoto Protocol - International Aviation

"The Parties included in Annex 1 shall pursue the limitation or reduction of greenhouse gases not controlled by the Montreal Protocol from aviation and marine bunker fuels, working through the International Civil Aviation Organization and the International Maritime Organization, respectively." (Article 2, para 2)

President Clinton's Five Climate Change Principles

Policies should:

- Be guided by science
- Rely on market-based, common-sense tools
- Seek win-win solutions
- Seek global participation
- Reflect common-sense reviews of the economics and science of climate change

The President's Three-Stage Plan on Climate Change

- Stage 1: Priming the Pump through R&D, Tax Incentives, Incentives for Early Action, Federal Leadership, and Industry Consultations
- Stage 2: Review and Evaluation
- Stage 3: Meeting Binding Targets through Domestic and International Emissions Trading Programs

NASA Aeronautics R&D Strategy

- Reduce emissions of future aircraft by a factor of three within 10 years and by a factor of five within 20 years
- Reduce the perceived noise levels of future aircraft by a factor of two from today's subsonic aircraft within 10 years, and by a factor of four within 20 years